

TABLE 1.0
LOCAL AIR MONITORING TRIGGER LEVELS
FOR ²³⁹PLUTONIUM IN SOILS

Soil Activity pCi/gram	1.8 Rem/yr. TSP mg/m ³	DAC/10 TSP mg/m ³
0.001	1060500	200000
0.01	106050	20000
0.1	10605	2000
1	1061	200
5	212	40
10	106	20
20	53	10
40	27	5
60	18	3
80	13	3
100	11	2
200	5	1
400	3	0.5
600	2	0.3
800	1.3	0.3
1000	1.1	0.2
1500	0.7	0.13
2000	0.5	0.10
5000	0.2	0.04
10000	0.1	0.02
20000	0.05	0.01
50000	0.02	0.004
80000	0.013	0.003
100000	0.011	0.002

Trigger levels are for Total Suspended Particulate matter (TSP) concentrations measured in the breathing zone as 8-hour, time-weighted averages. They are based on (1) the Derived Air Concentration (DAC)/10 which DOE recognizes as the criteria for implementing respiratory protection and (2) the RFP ALARA based recommended annual committed effective dose equivalent of 1.8 Rem/year.

Use of This Table

- 1) Identify the approximate soil activity in the area where intrusive activities are to be conducted.

- 2) Identify the corresponding DAC/10 and annual committed effective dose equivalent (i.e., 1.8 Rem/yr.) trigger levels. Those values represent TSP concentrations that trigger the following actions:
 - A) Donning respiratory protection equipment: DAC/10 threshold
 - B) Stop intrusive actions and reevaluate the activities, conditions, and precautionary requirements
- 3) Measure TSP breathing zone concentrations during intrusive activities using a Piezometric Balance, Mini-Ram, or comparable real-time instrument.
- 4) If measured TSP concentrations attain the trigger levels identified above, for a sustained period of time (15-30 minutes), such that the 8-hour time-weighted average could be approached, follow the appropriate requirements identified above (A or B) and notify the Site Health and Safety Coordinator.
- 5) RFP ALARA practice dictates that reasonable measures be taken to keep exposures to radionuclides as low as reasonably achievable. This implies that routine dust control measures such as local wetting and exposure control mechanisms such as avoiding the leeward dust plume path should be considered, to the extent practicable, regardless of the TSP measurements.
- 6) Environmental concentration measurements and estimates embody uncertainties and can vary at a given location. Thus, users of this table are encouraged to exercise conservative judgement regarding the selection of trigger levels.

FIGURE 1, TRIGGER LEVELS, PU IN SOIL

Total Suspended Particulate, mg/m³

